CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

BSCIC ISO 9001 REGISTERED JAS-ANZ

Job No.: CTCE/W.No.10/KAK/WMM/Gradation/2015-16 02.03.2016

GRADATION FOR WMM

MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. K. Anil Kumar,**
#84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.

Name of Work : Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016

Date of Testing : 02.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8635**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	215	215	2.5	97.5	95-100
22.4	2450	2665	30.9	69.1	60-80
11.2	1495	4160	48.2	51.8	40-60
4.75	1185	5345	61.9	38.1	25-40
2.36	1080	6425	74.4	25.6	15-30
0.600	985	7410	85.8	14.2	8-22
0.075	900	8310	96.2	3.8	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE-10

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP

Jadha
AE

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/W.No.10/KAK/WMM/AIV/2015-16

02.03.2016

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
Name of the Work	Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	02.03.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	87	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	22.42	22.62	22.52
	100* (W_2/W_1)%			

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laborato

→ The results indicated above are based on the tests carried out on the samples received in the labo

→ Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-Tech Consultants & Engineers Bangalore

AE

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/W.No.10/KAK/WMM/S-T/2015-16 02.03.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
Name of Work	Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	02.03.2016

Result : Flakiness Index = **12.35%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index **25.60%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laborat

→ Any Query regarding the report must be reported within 30 days from the date of testing.

AE-10

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

Sudha
AE

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/W.No.09/KAK/BC/Bitumen/2014-15 08.03.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
NAME OF THE WORK	Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016
SAMPLE I/D	Pothole filling to roads in Ward No.10.
DATE OF TESTING	08.03.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	27.00
7. Bitumen content in %	5.20	5.40
8. Average	**5.30**	

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples at site
- Any Query regarding the report must be reported within 30 days from the date of testing

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/W.No.09/KAK/BC/Bitumen/2014-15 08.03.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
NAME OF THE WORK	Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016
SAMPLE I/D	Pothole filling to roads in Ward No.10.
DATE OF TESTING	08.03.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	39.65	8.36	8.36	91.64	79-100
9.5	32.65	6.89	15.25	84.75	70-88
4.75	70.22	14.81	30.07	69.93	53-71
2.36	65.32	13.78	43.85	56.15	42-58
1.18	50.25	10.60	54.45	45.55	34-48
0.6	55.36	11.68	66.13	33.87	26-38
0.3	48.32	10.19	76.32	23.68	18-28
0.15	42.32	8.93	85.25	14.75	12-20
0.075	45.32	9.56	94.81	5.19	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.65	7.54	7.54	92.46	79-100
9.5	48.32	10.22	17.75	82.25	70-88
4.75	69.32	14.66	32.41	67.59	53-71
2.36	70.22	14.85	47.25	52.75	42-58
1.18	71.28	15.07	62.32	37.68	34-48
0.6	50.22	10.62	72.94	27.06	26-38
0.3	30.26	6.40	79.34	20.66	18-28
0.15	25.65	5.42	84.76	15.24	12-20
0.075	36.25	7.66	92.42	7.58	4-10

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore-97

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 30 days from the date of testing

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/W.No.09/KAK/BC/Bitumen/2014-15 09.03.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
NAME OF THE WORK	Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016
SAMPLE I/D	Pothole filling to roads in Ward No.10.
DATE OF TESTING	09.03.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	26.50
7. Bitumen content in %	5.20	5.30
8. Average	**5.25**	

Civil-Tech Consultants & Engineers Bangalore

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples at site
- Any Query regarding the report must be reported within 30 days from the date of testing

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/W.No.09/KAK/BC/Bitumen/2014-15 09.03.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
NAME OF THE WORK	Filling of potholes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/242/2015-16 Dated: 26.02.2016
SAMPLE I/D	Pothole filling to roads in Ward No.10.
DATE OF TESTING	09.03.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.28	9.55	9.55	90.45	79-100
9.5	30.28	6.39	15.94	84.06	70-88
4.75	69.38	14.64	30.58	69.42	53-71
2.36	64.25	13.55	44.13	55.87	42-58
1.18	49.32	10.41	54.54	45.46	34-48
0.6	54.65	11.53	66.07	33.93	26-38
0.3	46.38	9.78	75.85	24.15	18-28
0.15	41.28	8.71	84.56	15.44	12-20
0.075	42.32	8.93	93.49	6.51	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	39.25	8.29	8.29	91.71	79-100
9.5	44.36	9.37	17.66	82.34	70-88
4.75	68.32	14.43	32.09	67.91	53-71
2.36	71.25	15.05	47.13	52.87	42-58
1.18	70.28	14.84	61.98	38.02	34-48
0.6	52.32	11.05	73.03	26.97	26-38
0.3	31.28	6.61	79.63	20.37	18-28
0.15	29.33	6.19	85.83	14.17	12-20
0.075	35.26	7.45	93.27	6.73	4-10

'Assistant Executive Engineer Vidyaranyapura Sub Division BBMP, Bangalore-97'

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 30 days from the date of testing

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore 79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

M/s. Civil Tech Consultants & Engineers #23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathinagara, Basaveshwaranagar, Bangalore-560079.